

PATENT CLAIMS

1. A use of a compound for the manufacture of a medicament for the treatment of a patient suffering from chronic obstructive pulmonary disease (COPD), which is functionally uncoupled from or pharmacologically not correlated to hypertension diseases, wherein said compound is a peptide or a polypeptide comprising the following amino acid sequence:

Arg-Lys-Gln-Met-Ala-Val-Lys-Lys-Tyr-Leu.

10 2. A use according to claim 1, wherein said peptide or a polypeptide further comprises at least one of the following amino acid sequences:

His-Ser-Asp; Phe-Thr-Asp.

15 3. A use according to claim 1, wherein said peptide or a polypeptide further comprises the amino acid sequences His-Ser-Asp and Phe-Thr-Asp.

4. A use according to claim 1, wherein said peptide or a polypeptide has the following amino acid sequence:

(A)_n- Arg-Lys-Gln-Met-Ala-Val-Lys-Lys-Tyr-Leu- (B)_m

20 wherein

A, B is any natural occurring amino acid residue, A and B are independently from each other; and n, m is an integer having values from 0 – 25; n and m being independently from each other.

25 5. A use according to claim 4, wherein, if n > 2, (A)_n has the following sequence:

(X)_o-Phe-Thr-Asp- (Y)_p

wherein

X, Y is any natural occurring amino acid residue, X and Y are independently from each other; and o, p is an integer having values from 0 – 11, o and p being independently from each other.

30 6. A use according to claim 5, wherein, if o > 2 (X)_o has the following sequence:

(X')_q-His-Ser-Asp- (X'')_r

wherein X', X'' is any natural occurring amino acid residue, X' and X'' are

independently from each other; and r, q is an integer having values from 0 – 4, r and q being independently from each other.

7. A use according to claim 4, wherein the sequence of said peptide or polypeptide is selected from the following group:

- (i) Arg-Lys-Gln-Met-Ala-Val-Lys-Lys-Tyr-Leu;
- (ii) Phe-Thr-Asp-X¹-X²-X³-X⁴-X⁵-Arg-Lys-Gln-Met-Ala-Val-Lys-Tyr-Leu-Asn-Ser-Ile-Leu-Asn
- (iii) Phe-Thr-Asp-Asn-Tyr-Thr-Arg-Leu-Arg-Lys-Gln-Met-Ala-Val-Lys-Tyr-Leu-Asn-Ser-Ile-Leu-Asn;
- (iv) Phe-Thr-Asp-Ser-Tyr-Ser-Arg-Tyr-Arg-Lys-Gln-Met-Ala-Val-Lys-Tyr-Leu;
- (v) His-Ser-Asp-X¹-X²-Phe-Thr-Asp-X³-X⁴-X⁵-X⁶-X⁷-Arg-Lys-Gln-Met-Ala-Val-Lys-Tyr-Leu;
- (vi) His-Ser-Asp-Ala-Val-Phe-Thr-Asp-Asn-Tyr-Thr-Arg-Leu-Arg-Lys-Gln-Met-Ala-Val-Lys-Tyr-Leu,
- (vi) His-Ser-Asp-Gly-Ile-Phe-Thr-Asp-Ser-Tyr-Ser-Arg-Tyr-Arg-Lys-Gln-Met-Ala-Val-Lys-Tyr-Leu;
- (vii) His-Ser-Asp-X¹-X²-Phe-Thr-Asp-X³-X⁴-X⁵-X⁶-X⁷-Arg-Lys-Gln-Met-Ala-Val-Lys-Tyr-Leu-X⁸-X⁹-X¹⁰-X¹¹ (-X¹²);
- (viii) His-Ser-Asp-Ala-Val-Phe-Thr-Asp-Asn-Tyr-Thr-Arg-Leu-Arg-Lys-Gln-Met-Ala-Val-Lys-Tyr-Leu-Asn-Ser-Ile-Leu-Asn (VIP);
- (ix) His-Ser-Asp-Gly-Ile-Phe-Thr-Asp-Ser-Tyr-Ser-Arg-Tyr-Arg-Lys-Gln-Met-Ala-Val-Lys-Tyr-Leu-Ala-Ala-Val-Leu (PACAP-27);
- (x) His-Ser-Asp-X¹-X²-Phe-Thr-Asp-X³-X⁴-X⁵-X⁶-X⁷-Arg-Lys-Gln-Met-Ala-Val-Lys-Tyr-Leu-X⁸-X⁹-X¹⁰-X¹¹-X¹²-X¹³-X¹⁴-X¹⁵-X¹⁶-X¹⁷-X¹⁸-X¹⁹-X²⁰-X²¹-X²²;
- (xi) His-Ser-Asp-Gly-Ile-Phe-Thr-Asp-Ser-Tyr-Ser-Arg-Tyr-Arg-Lys-Gln-Met-Ala-Val-Lys-Tyr-Leu-Ala-Ala-Val-Leu-Gly-Lys-Arg-Tyr-Lys-Gln-Arg-Val-Lys-Asn-Lys (PACAP-38);

wherein X¹ – X²² is any naturally occurring amino acid residue.

8. A use according to any of the claims 1 - 7, wherein said peptide or polypeptide is brought in a stabilized form.

9. A use according to claim 8, wherein said peptide is pegylated.

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10. A use according to any of the claims 1 - 9, wherein the COPD is selected from the following group: chronic bronchitis, pulmonary emphysema, chronic cough.

10. A use of claim 10, wherein a daily administration of the medicament leads to an improvement of the FEV1 value of more than 15% after 3 months.

12. A use of claim 10, wherein a daily administration of the medicament leads to an improvement of the paO2 value of more than 35% after 3 months.

15. 13. A use of a peptide or polypeptide as defined in any of the claims 1 - 9 for the manufacture of a medicament for the improvement or recovery of the general state of health which had been reduced by chronic bronchitis and chronic cough.

20. 14. A use of a compound for the manufacture of a medicament for the treatment of a patient suffering from acute (adult) respiratory distress syndrome (ARDS), wherein said compound is a peptide or a polypeptide as defined in any of the claims 1 - 9.

25. 15. A method for treatment of COPD comprising administering to a patient a peptide or a polypeptide as defined in any of the claims 1 - 9.

16. A method of claim 15, wherein the COPD is selected from the group: chronic bronchitis, pulmonary emphysema, chronic cough.

30. 17. A method of claim 15 or 16, wherein a daily administration of the peptide or polypeptide leads to an improvement of the FEV1 value of more than 15% after 3 months.

18. A method of claim 15 or 16, wherein a daily administration of the peptide or polypeptide leads to an improvement of the paO₂ value of more than 35% after 3 months.

5 19. A method for treatment of ARDS comprising administering to a patient a peptide or a polypeptide as defined in any of the claims 1 – 9.

20. A method of any of the claims 15 – 19 comprising inhalation of an aerosol of the peptide or polypeptide by the patient.

10 21. A method of claim 20, wherein the aerosol is made from a isotonic NaCl solution containing said peptide or polypeptide, preferably in a pegylated form.

15 22. A pharmaceutical composition consisting of a aqueous sodium chloride solution in an isotonic concentration comprising VIP, PACAP or another peptide as defined in any of the claims 1 – 9 in a pegylated form.

23. The pharmaceutical composition of claim 22, wherein said peptide or polypeptide is present in a concentration range between 3 and 300 mg / L.

20 24. The pharmaceutical composition of claim 22 or 23 as aerosol.